

REMARKS

Claim 58 has been amended and claim 63 has been has been added to clarify the subject matter of the claimed invention and to further differentiate over the cited prior art. Certain of the dependent claims have been amended to depend upon new claim 63 and new dependent claims 64-78 have been added to further scope the invention. No new matter has been added.

The art rejections are respectfully traversed. Considering first the rejection of claims 2, 3, 15, 17, 19-21, 24-26 and 58-61 under § 103(a) as being obvious from da Costa in view of Chinn, independent claims 58 and 63 each requires, in part, “wherein each actuator has a starting position in which the actuator is separated from the inner top surface of the chamber, and wherein successive actuators in the series are sequentially expanded from the starting position toward the inner top surface of the chamber to advance the flow of fluid through the chamber and out the outlet port”. The combination of Chinn and da Costa does not teach this. Da Costa teaches a hermetically sealed refrigeration system compressor using a piezoelectric material as pistons to move and compress a gas. Abstract. Each of the pistons begins in a position to occupy “all of the internal volume of the hermetic shell” (Abstract), and “in sealing contact with the adjacent inner face of the first pair of opposite lateral walls of the hermetic shell.” Col. 3, lines 1-2. When the piezoelectric pistons are subjected to a second energizing condition, the piston is moved to a “**contracting position** defined by the distancing of one of its opposite end faces from the inner face of the adjacent second lateral wall of the hermetic shell.” Figs. 1a-1f, col. 3, lines 10-13. Moreover, if the actuators of da Costa had a starting position in which the actuator is separated from the inner top surface of the chamber as required by the independent claims, the inlet and outlet of the hermetic shell would be in fluid communication, a condition that would not allow the compression of the gas that is the sole

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purpose of da Costa, and thus a condition expressly taught against by da Costa. See col. 4, lines 44-57. Accordingly, da Costa does not provide at least this feature of the claims.

Moreover, Applicant's claims, as amended, require that the pump chamber include an outlet port and that the flow of fluid is through the chamber and out the outlet port. Da Costa is a hermetically sealed system and does not have an outlet port. Indeed, including an outlet port in da Costa would render da Costa inoperative as a refrigeration system.

The Examiner, in the Office Action dated July 1, 2009, cites Chinn for teaching the use of an elastomeric material as a valve actuator, and submits that Chinn and da Costa may be combined to achieve the present invention by substituting the structure of Chinn for each individual actuator of da Costa. Even assuming, arguendo, that Chinn teaches as the Examiner describes, however, substituting the structure of Chinn does not achieve the claimed invention. Chinn is a valve or gate. Chinn is not a pump. Chinn doesn't move anything. And, Chinn doesn't have an outlet port. Chinn is the outlet port! No combination of Chinn and da Costa teaches, at least, a plurality of individual actuators comprising a reversibly responsive elastomeric material, wherein the plurality of individual actuators is arranged in a series and located in the chamber opposite to the inner surface and in contact with the fluid, wherein each actuator has a starting position in which the actuator is separated from the inner surface of the chamber, and wherein successive actuators in the series are sequentially expanded from the starting position toward the inner surface of the chamber to advance the flow of fluid through the chamber and out the output port, as required by Applicant's independent claims 58 and 63.

Claims 2, 3, 15, 17, 19-21, 24-26 and 59-61, depend upon independent claim 63, and are thus allowable for the reasons stated above, as well as for their own, additional, limitations.

Turning to the rejection of claims 5-7 as being unpatentable over da Costa in view of Chinn et al. as applied to claim 59 above and further in view of Culp (U.S. Patent No.

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5,192,197), the deficiencies of da Costa in view of Chinn is set forth above. Culp is cited for teaching an activator including a controller which is responsive to pressure, temperature, and flow signals from a sensor. Final Rejection at p. 3. Culp does nothing to provide the more basic teachings missing from da Costa and Chinn as described above. Accordingly, claims 5-7 are allowable at least for the reasons adduced above, as well as for their own, additional limitations.

New independent claim 63 includes similar patentably distinguishing features as claim 58 and is allowable over the art for the same reasons above adduced relative to claim 58. New claims 64-78, which have been added to further scope the invention, are dependent on claim 58 or 63 and are allowable over the art for the same reasons above adduced relative to claim 58 and 63, as well as for their own additional limitations.

Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Entry of the foregoing Amendment and allowance of the Application are respectfully requested.

Added claim and RCE fees are being paid via EFS WEB in the amount of \$717.00.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391

Respectfully submitted,



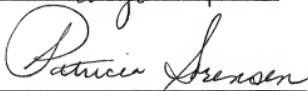
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